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FINAL REPORT

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A. Gordon Emslie, Principal Investigator

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We have completed our analysis of *Yohkoh* Ca XIX spectra using intercomparison of normalized integral moments, notably the first and third. We have found that the observed spectral line profiles are totally inconsistent with a two-component fit. Consequently, we have derived a general procedure for calculating many-component fits to observed profiles. This procedure involves a new quantity, which we term the Velocity Differential Emission Measure (VDEM). It can be calculated from theoretical model atmospheres, or deduced from observed Ca XIX profiles through an integral inversion procedure. In this way the compatibility of various model heating mechanisms with the observations can be tested, without the need to construct synthetic profiles for each and every model atmosphere or heating mechanism. These procedures have now been developed and tested, and we are ready to commence the analysis of *Yohkoh* line profiles. Results from this work have been reported at the American Geophysical Society meeting in Baltimore, Maryland, and published in *EOS*, Volume 75, No. 16, page 293. A paper for submission to *The Astrophysical Journal* is in preparation.

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